

Attachment 2
DSM Calculations & AssumptionsR:\Geod-Dsm/Bausch/Residential Gas DSM 2007/Final Program Design 20070717.xls
7/17/2007

\$ 11.55 per dKt gas cost (July 1, 2007)

Attic/ceiling insulation

Per Nexant

Increasing ceiling insulation from R-0 to R-38 will save	0.03314	dKt/sqft and cost	\$	0.87	per sqft
Increasing ceiling insulation from R-0 to R-49 will save	0.03385	dKt/sqft and cost	\$	0.97	per sqft
Increasing ceiling insulation from R-11 to R-38 will save	0.01064	dKt/sqft and cost	\$	0.58	per sqft
Increasing ceiling insulation from R-11 to R-49 will save	0.01186	dKt/sqft and cost	\$	0.70	per sqft
Increasing ceiling insulation from R-19 to R-38 will save	0.00606	dKt/sqft and cost	\$	0.42	per sqft
Increasing ceiling insulation from R-19 to R-49 will save	0.00741	dKt/sqft and cost	\$	0.58	per sqft

Assume the average home has 1,551 sqft of ceiling area

Assume R-0 as base case, increase insulation to R-38

Savings per ave home	51.40014	dKt/yr			
Cost per ave home	\$	1,354			
Measure life		30	years		
NPV of gas saved =	\$	3,232			
Rebate at 50% npv =	\$	1,616		approx \$	1.04 per sqft
Rebate per sqft =	\$	0.29	per sqft	approx	33.2% of project cost
SPB without rebate		2.28	years		
SPB with rebate		1.52	years		
TRC test		2.39			

Assume R-0 as base case, increase insulation to R-49

Savings per ave home	52.50135	dKt/yr			
Cost per ave home	\$	1,511			
Measure life		30	years		
NPV of gas saved =	\$	3,301			
Rebate at 50% npv =	\$	1,651		approx \$	1.06 per sqft
Rebate per sqft =	\$	0.34	per sqft	approx	34.9% of project cost
SPB without rebate		2.49	years		
SPB with rebate		1.62	years		
TRC test		2.19			

Assume R-11 as base case, increase insulation to R-38

Savings per ave home	16.50264	dKt/yr			
Cost per ave home	\$	900			
Measure life		30	years		
NPV of gas saved =	\$	1,038			
Rebate at 50% npv =	\$	519		approx \$	0.33 per sqft
Rebate per sqft =	\$	0.20	per sqft	approx	34.5% of project cost
SPB without rebate		4.73	years		
SPB with rebate		3.10	years		
TRC test		1.15			

Assume R-11 as base case, increase insulation to R-49

Savings per ave home	18.39486	dKt/yr			
Cost per ave home	\$	1,080			
Measure life		30	years		
NPV of gas saved =	\$	1,157			
Rebate at 50% npv =	\$	578		approx \$	0.37 per sqft
Rebate per sqft =	\$	0.24	per sqft	approx	34.5% of project cost
SPB without rebate		5.08	years		
SPB with rebate		3.33	years		
TRC test		1.07			

Assume R-19 as base case, increase insulation to R-38

Savings per ave home	9.39906 dKt/yr		
Cost per ave home	\$ 656		
Measure life	30 years		
NPV of gas saved =	\$ 591		
Rebate at 50% npv =	\$ 295	approx \$	0.19 per sqft
Rebate per sqft =	\$ 0.14 per sqft	approx	33.1% of project cost
SPB without rebate	6.05 years		
SPB with rebate	4.05 years		
TRC test	0.90		

Assume R-19 as base case, increase insulation to R-49

Savings per ave home	11.49291 dKt/yr		
Cost per ave home	\$ 905		
Measure life	30 years		
NPV of gas saved =	\$ 723		
Rebate at 50% npv =	\$ 361	approx \$	0.23 per sqft
Rebate per sqft =	\$ - per sqft	approx	0.0% of project cost
SPB without rebate	6.82 years		
SPB with rebate	6.82 years		
TRC test	0.80		

Foundation/Basement Wall Insulation

Assume 1,440 sqft of wall for the average home

Increase Foundation/Basement wall from R-0 to R-11

Savings per ave home	18.20 dKt/yr		
Cost per ave home	\$ 1,251	at \$	0.87 per sqft
Measure life	30 years		
NPV of gas saved =	\$ 1,144		
Rebate at 50% npv =	\$ 572	approx \$	0.40 per sqft
Rebate per sqft =	\$ 0.29 per sqft	approx	33.4% of project cost
SPB without rebate	5.95 years		
SPB with rebate	3.96 years		
TRC test	0.91		

Crawlspace Wall Insulation (For conditioned crawlspaces only)

Assume 480 sqft of crawlspace walls for the average home

Increase Crawlspace Wall from R-0 to R-19 - R-20 recommended

Savings per ave home	5.80 dKt/yr		
Cost per ave home	\$ 404	at \$	0.84 per sqft
Measure life	30 years		
NPV of gas saved =	\$ 365		
Rebate at 50% npv =	\$ 182	approx \$	0.38 per sqft
Rebate per sqft =	\$ 0.28 per sqft	approx	33.2% of project cost
SPB without rebate	6.04 years		
SPB with rebate	4.03 years		
TRC test	0.90		

Exterior Above Grade Wall Insulation

Assume 1,440 sqft of exterior wall for the average home

Increase exterior above grade wall from R-0 to R-11

Savings per ave home	31.20 dKt/yr		
Cost per ave home	\$ 1,757	at \$	1.22 per sqft
Measure life	30 years		
NPV of gas saved =	\$ 1,962		
Rebate at 50% npv =	\$ 981	approx \$	0.68 per sqft
Rebate per sqft =	\$ 0.41 per sqft	approx	33.6% of project cost
SPB without rebate	4.88 years		
SPB with rebate	3.24 years		
TRC test	1.12		

Exterior Above Grade Wall Insulation

Assume 1,440 sqft of exterior wall for the average home

Increase exterior above grade wall from R-11 to R-21

Savings per ave home	14.22	dKt/yr		
Cost per ave home	\$ 1,757		at \$ 1.22	per sqft
Measure life	30	years		
NPV of gas saved =	\$ 894			
Rebate at 50% npv =	\$ 447		approx \$ 0.31	per sqft
Rebate per sqft =	\$ -	per sqft	approx 0.0%	of project cost
SPB without rebate	10.70	years		
SPB with rebate	10.70	years		
TRC test	0.51			

Floor Insulation - over non-conditioned space

Assume 1,888 sqft of floor for the average home

Assume R-0 basecase, increase floor insul. to R-19

Savings per ave home	5.80	dKt/yr		
Cost per ave home	\$ 1,907		at \$ 1.01	per sqft
Measure life	30	years		
NPV of gas saved =	\$ 365			
Rebate at 50% npv =	\$ 182		approx \$ 0.10	per sqft
Rebate per sqft =	\$ -	per sqft	approx 0.0%	of project cost
SPB without rebate	28.47	years		
SPB with rebate	28.47	years		
TRC test	0.19			

Assume R-0 basecase, increase floor insul. to R-30

Savings per ave home	9.10 dKt/yr		
Cost per ave home	\$ 2,794	at \$	1.48 per sqft
Measure life	30 years		
NPV of gas saved =	\$ 572		
Rebate at 50% npv =	\$ 286	approx \$	0.15 per sqft
Rebate per sqft =	\$ - per sqft	approx	0.0% of project cost
SPB without rebate	26.59 years		
SPB with rebate	26.59 years		
TRC test	0.20		

High Efficiency Windows

Assume 156 sqft of windows in the average home

Replace existing windows with U-0.35 low-e windows

Savings per ave home	5.30 dKt/yr		
Cost per ave home	\$ 7,644	at \$	49.00 per sqft
Measure life	30 years		
NPV of gas saved =	\$ 333		
Rebate at 50% npv =	\$ 167	approx \$	1.07 per sqft
Rebate per sqft =	\$ - per sqft	approx	0.0% of project cost
SPB without rebate	124.90 years		
SPB with rebate	124.90 years		
TRC test	0.04		

Replace existing windows with U-0.32 low-e windows

Savings per ave home	13.30 dKt/yr		
Cost per ave home	\$ 7,956	at \$	51.00 per sqft
Measure life	30 years		
NPV of gas saved =	\$ 836		
Rebate at 50% npv =	\$ 418	approx \$	2.68 per sqft
Rebate per sqft =	\$ - per sqft	approx	0.0% of project cost
SPB without rebate	51.81 years		
SPB with rebate	51.81 years		
TRC test	0.11		

Storm Windows

Assume 156 sqft of windows in the average home

Install single pane storm windows over single pane windows

Savings per ave home	2.00 dKt/yr		
Cost per ave home	\$ 3,722	at \$	23.86 per sqft
Measure life	30 years		
NPV of gas saved =	\$ 126		
Rebate at 50% npv =	\$ 63	approx \$	0.40 per sqft
Rebate per sqft =	\$ - per sqft	approx	0.0% of project cost
SPB without rebate	161.17 years		
SPB with rebate	161.17 years		
TRC test	0.03		

Efficient Furnace/Boiler

Assume existing furnace/boiler 68% AFUE

Replace existing furnace/boiler with a new 80% AFUE

Savings per ave home	17.65 dKt/yr		
Cost per ave home	\$ 2,000		
Measure life	15 years		
NPV of gas saved =	\$ 757		
Rebate at 50% npv =	\$ 379		
Rebate	\$ -	approx	0.0% of project cost
SPB without rebate	9.81 years		
SPB with rebate	9.81 years		
TRC test	0.38		

Efficient Furnace/Boiler

Assume existing furnace/boiler 68% AFUE

Replace existing furnace/boiler with a new 90% AFUE

Savings per ave home	32.35	dKt/yr		
Cost per ave home	\$	2,500		
Measure life		15	years	
NPV of gas saved =	\$	1,388		
Rebate at 50% npv =	\$	694		
Rebate	\$	-	approx	0.0% of project cost
SPB without rebate		6.69	years	
SPB with rebate		6.69	years	
TRC test		0.56		

Direct Vent Room Heater

Assume existing room heater 65% AFUE

Assume existing room heater provides space heat for 25% of a 1550 sqft home or 388 sqft

Replace existing room heater with a new 80% AFUE

Savings per ave home	5.51	dKt/yr		
Cost per ave home	\$	750		
Measure life		15	years	
NPV of gas saved =	\$	236		
Rebate at 50% npv =	\$	118		
Rebate	\$	-	approx	0.0% of project cost
SPB without rebate		11.79	years	
SPB with rebate		11.79	years	
TRC test		0.32		

Programmable Energy Star Thermostat (unit cost = \$51.71, installed cost = \$87.21/unit)

Savings per ave home	4.6875	dKt/yr		
Cost per ave home	\$	87.21		
Measure life		30	years	
NPV of gas saved =	\$	295		
Rebate at 50% npv =	\$	147		
Rebate	\$	30	approx	34.4% of project cost
SPB without rebate		1.61	years	
SPB with rebate		1.06	years	
TRC test		3.38		

Low Flow Showerhead

(2.5 gpm or less)

Savings per ave home	1.24	dKt/yr		
Cost per ave home	\$	3.99		
Measure life		15	years	
NPV of gas saved =	\$	53		
Rebate at 50% npv =	\$	27		
Rebate	\$	1.35	approx	33.8% of project cost
SPB without rebate		0.28	years	
SPB with rebate		0.18	years	
TRC test		13.33		

Low Flow Faucet Aerator

2.2 gpm or less for kitchen & two each 1.5 gpm or less for bathroom

Savings per ave home	0.93	dKt/yr		
Cost per ave home	\$	1.87	(\$1.09 kitchen + \$0.39 each for bathroom)	
Measure life		15	years	
NPV of gas saved =	\$	40		
Rebate at 50% npv =	\$	20		
Rebate	\$	0.62	approx	33.2% of project cost
SPB without rebate		0.17	years	
SPB with rebate		0.12	years	
TRC test		21.34		

Window Shrink Wrap Kit

Savings per ave home	6.47713	dKt/yr		
Cost per ave home	\$ 4.22		per box for five 3' x 5' windows	
Measure life	1	years		
NPV of gas saved =	\$ 35			
Rebate at 50% npv =	\$ 18			
Rebate	\$ 1.40		approx	33.2% of project cost
SPB without rebate	0.06	years		
SPB with rebate	0.04	years		
TRC test	8.41			

Weather Stripping and Sealing

Savings per ave home	3.58	dKt/yr		
Cost per ave home	\$ 24.09			
Measure life	10	years		
NPV of gas saved =	\$ 115			
Rebate at 50% npv =	\$ 58			
Rebate	\$ 8.00		approx	33.2% of project cost
SPB without rebate	0.58	years		
SPB with rebate	0.39	years		
TRC test	4.77			

Assume a weather stripping kit costs \$24.09

Kit consists of:

Weather stripping for 2 doors	\$ 15.86	at \$ 7.93	per door
Door sweeps for 2 doors	\$ 3.38	at \$ 1.69	per sweep
One can of foam	\$ 3.89		
1 pkg outlet plate covers (10)	\$ 0.48		
1 pkg switch plate covers (10)	\$ 0.48		

Total \$ 24.09